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COMPUTERNEWS

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Janet Campbell, Editor

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EDUCATION SCHEDULE

Following is a list of short courses offered by UTCC. Please note that all courses require the user to hold, or have access to, a Customer Account Number. To register please call the UTCC Information Office at 978-4990.

Adam Love

Introduction to Utilities

Prerequisite: Must hold a CAN. Introduction to Data Processing. A basic knowledge of JCL is advantageous. Note: JCL and Utilities courses should not be taken simultaneously as there is some overlap.

Date: Nov. 1, 3, 5

Time: 4 - 6 p.m.

Instructor: A. Love

The course will provide an overview of basic dataset utilities. Emphasis will be placed on utilities used to create, allocate, move, manipulate, list and delete datasets. The course will be of interest to users wanting to use direct access devices for storage of their data. Utilities surveyed will include ones written by both UTCC and IBM.

Students will be expected to test their knowledge by completing small assignments on the manipulation of datasets.

Introduction to Job Control Language (JCL)

Prerequisite: Must hold a CAN. Must be experienced in the use of a programming language.

Dates: Nov. 8, 10, 12

Time: 4 - 6 p.m.

Instructor: Martin Hubel

Job Control Language is the programmer's means of telling the operating system what resources each program will require (e.g. memory, datasets, tapes, etc.). This course is intended to present the fundamental statements of JCL and explain their use. The student will be expected to test his knowledge by completing small assignments.

Statistical Package for the Social Sciences (SPSS)

Prerequisite: Must hold a CAN. Background in Social Science Statistics.

Dates: Nov. 8, 9, 10, 11, 12

Time: 5 - 6 p.m.

Maximum # of Registrants: 30

Instructor: John Roth

For Social Sciences users who are, or will be, using the computer to process their data. SPSS is an applications oriented programming language which contains powerful routines for the analysis of data while allowing the user to manipulate his data with simple FORTRAN-like statements.

HOURS OF SERVICE - THANKSGIVING WEEKEND

The following hours of service will be in effect for S/370-165-II users during the Thanksgiving Weekend:

October 9 (Saturday)	October 10 (Sunday)	October 11 (Monday)
10:00-18:00	10:00-18:00	closed

Hours of service for the S/360-65 users will be:

October 9	October 10	October 11
9:00-18:00	9:00-18:00	unatt'd

Normal hours of service for both systems will resume Tuesday, October 12, 1976.

SHARE XLVII

There was much enthusiasm, participation and lively discussion re the draft proposed American National Standard FORTRAN (dpANS FORTRAN). Topics ranged from general issues such as the need for internal procedures and restricted entry/exit to the IF-THEN-ELSE construct, to the minute details of comment formats, character length of names, etc. Voting was called on various items and the consensus will be passed to the American National Standards Committee X3J3 FORTRAN Standard as input from SHARE. As mentioned in a previous COMPUTERNEWS article, users are encouraged to submit their comments and/or opinions directly to X3J3 before the deadline of September 28, 1976. There is no commitment by IBM to implement the forthcoming standard; however, the feeling is that market pressure will result in its incorporation in future IBM FORTRAN compilers.

There is growing concern in the area of multi-languages and multi-levels support with regard to their cost, effectiveness, usage, compatibility, redundance and future trend. There is also some interest and experimentation in automatic aids in program and system specification, design, development, testing and documentation.

In the area of language conversion, several installations found the IBM FORTRAN conversion aid from non/370 FORTRAN and the PL/I F to OPTIMIZING/CHECKOUT conversion product useful. However, manual conversion for more complicated situations is still necessary. Coupled with the expensive charges for the conversion aids, manual conversion with a text editor like EDIT in TSO is still a more economical and effective means of conversion unless there is a large number of programs to be converted.

The following items discussed at the Conference are of immediate interest and benefit to users:

1) Under test for implementation, is a variation of a modification to FORTRAN ERROR handling routines to output explanatory notes and hints of errors' causes along with error messages.

2) A report writer for PL/I similar to that in COBOL has been ordered.

Finally, PL/I Release 3, with additional new structured programming constructs, which has been anticipated for some time, was formally announced for the beginning of next year.

Kin Fong

14TH DESIGN AUTOMATION CONFERENCE

Requirements for Submitting Papers:

If you plan to submit a paper, you should send three copies of the paper (rough drafts are acceptable) to the program chairman no later than December 15, 1976. Please include a title for the paper plus an abstract (less than 25 words).

Accompanying the draft should be the full name, affiliation address and telephone number of the principal author, with whom all further direct communication will be conducted.

Notification of acceptance will be sent to you during the first week of March 1977. After notification of acceptance, you will receive detailed instructions on the format to be observed in typing the final copy. To insure the availability of Proceedings at the Workshop, your final manuscript will be due April 20, 1977.

Final papers should be no longer than 5000 words and the presentation should be limited to 20 minutes. Projection equipment for 35mm slides and viewgraph (overhead projector) foils will be available for every talk. Please indicate what, if any, additional audio-visual aids you require.

Rough drafts are to be sent to the Program Chairman:

David W. Hightower
Texas Instruments, Inc.
P.O. Box 5012 MS907
Dallas, Texas 75222
214-238-3492

Computer Aided Artwork Contest

Any useful, viewable output from a CAD system can be entered in the Design Automation Conference Artwork contest. A letter to the contest chairman stating title and display area required is due by April 20, 1977.

Contest Chairman

Paul Losleben
R 154
9800 Savage Rd.
Fort Meade, Maryland 20755
301-688-7815

General Chairman

Judith G. Brinsfield
Bell Laboratories
Room 3B-323
Whippany Road
Whippany, NJ 07981
201-386-3169

Sponsors

The sponsors of the Design Automation Workshop are the ACM (Association for Computing Machinery) Special Interest Group on Design Automation and IEEE (Institute of Electrical and Electronics Engineers) Computer Society Design Automation Technical Committee.

Design Automation

Design Automation implies the use of computers as aids to the design process.

In the broadest sense, the design process includes everything from specifying the characteristics of a product to meet a marketing objective to enumerating the details of how it is to be manufactured and tested.

cont'd...

AUTOMATION CONFERENCE cont´d

Thus design automation embraces applications from one end of the design process to the other.

Site of the 14th DAC

International Hotel
300 Canal Street
New Orleans, Louisiana
June 20, 21, 22, 1977.

Topics of Interest

Techniques
Software Aids
Verification
Simulation
Synthesis
Analysis

Implementations
Data Base Design
Interactive Tools
Design Languages
Total Systems
Graphics

Applications
Manufacturing
Digital Systems
Architecture
Aerospace
Naval
LSI PCB

Functions
Interconnection
Partitioning
Inspection
Placement
Testing
Layout

PERSONNEL CHANGES

Coming on staff at the Centre this month in the Services Area are Mei Lien who will be working in the Information Systems Keypunching area, Gillian Reese who is replacing Dave Tritchler as the Arts and Science Computing Co-ordinator and Gurpal Singh who will replace Winston Davis as a Computer Operator in Arts and Science. Winston is replacing Sandra Lombardi as Computer Operator at Scarborough College. Sandra has transferred to the 360/65 area.

Returning to the Services area in the Keypunching section is Miranda Fong. Welcome back Miranda. John Roth is taking over the position left vacant by Len Prepas.

Congratulations are extended to Sean Keeley who has been appointed Manager of the Information Systems Services at 215 Huron Street.

Best of luck to all of you in your new positions.

June Bridges

RECENT ACQUISITIONS IN THE DEPARTMENT OF COMPUTER SCIENCE LIBRARY

Advances in Information Systems Science.
vol. 6, 1976.

Agrawala, Ashok K. and Rauscher, T.G.
Foundations of Microprogramming: Architecture, Software and Applications.
New York, Academic Press, 1976.

cont´d...

RECENT ACQUISITIONS cont´d

Chu, Yaohan, ed.
High-level Language Computer Architecture.
New York, Academic Press, 1975.

Coffman, Edward Grady, Jr., ed.
Computer and Job-shop Scheduling Theory.
New York, Wiley, 1976.

Colloquium on Automata, Languages and Programming, 3d, Edinburgh, July 1976.
Automata, Languages and Programming, ed. by S. Michaelson and R. Milner.
Edinburgh, University Press, 1976.

Cowan, D.D., Dirksen,pP.H. and Grahan, J.W.
An Introduction to COBOL with WATBOL: A Structured Programming Approach.
Waterloo, Ont. WATFAC, 1976.

Horowitz, Ellis, ed.
Practical Strategies for Developing Large Software Systems.
Reading, Mass., Addison-Wesley, 1975.

Keller, Herbert B.
Numerical Solution of Two Point Boundary Value Problems.
Philadelphia, SIAM, 1976.

Kleinrock, Leonard.
Queueing Systems.
New York, Wiley, 1975-76.
2 v. (Vol. I: Theory. Vol II: Computer Application)

Lewis, Philip M., II, Rosenkrantz, D.J. and Stearns, R.E.
Compiler Design Theory.
Reading, Mass., Addison-Wesley, 1976.

Yourdon, Edward.
Techniques of Program Structure and Design.
Englewood Cliffs, N.J., Prentice-Hall, 1975.

CLASS C REVISITED

As Class C has now been operational for nearly one year, it is an appropriate time to review whether the Class C service has successfully met its objectives.

Class C was established in October 1975 as a Special Purpose Job Stream to utilize the excess overnight S/370-165-II machine capacity. The SPJS was intended to satisfy the demands of the user who had very large computational and low job turnaround requirements. SPJS jobs were charged only for those resources for which there was direct contention from other classes (memory and tape drives) and for resources which involve real additional costs (cards read and lines printed).

Below is a summary of S/370-165-II CPU usage by term by service for 1975 and 1976. The Medium Job Stream (MSJS) includes all jobs run under Executor. The General Purpose Job Stream (GPJS) includes all Class B jobs and jobs that have been requeued by Executor.

S/370-165-II CPU Usage
(MINUTES)

1975

TERM	HSJS,MSJS and GPJS	SPJS	TOTAL
SPRING Jan. to Apr.	37,625	-	37,625
SUMMER May to Aug.	27,638	-	27,638
FALL Sept. to Dec.	28,503	4,400	32,903
TOTAL	93,766	4,400	98,166

1976

TERM	HSJS,MSJS and GPJS	SPJS	TOTAL
SPRING Jan. to Apr.	34,623	12,183	46,806
SUMMER May to Aug.	25,878	27,664	53,442
TOTAL to date	60,501	39,847	100,348

CLASS C cont'd

The total CPU usage in the spring and summer of this year was 56% higher than in the same period in 1975. In fact, more CPU minutes were used in the first eight months of 1976 than in all of 1975.

The CPU usage by High Speed, Medium Speed, and General Purpose Job Streams during the spring and summer of 1976 is down slightly by 7% from last year. One might have expected that the introduction of SPJS would have diverted more usage from the other job streams and the job turnaround times. However, the job turnaround characteristics of SPJS did not meet the requirements for most users. The turnaround times ranged from several days to more than one week depending on the overall system load and the mix of other SPJS jobs queued for execution. Only about 1% of all jobs run in any month were run as SPJS jobs.

The SPJS jobs tend to be large computational jobs. The one percent of the jobs run in the SPJS account for 40% of the total CPU usage. The SPJS is used almost exclusively by the research user. In June, for example, research codes accounted for 97% of the total SPJS usage.

During the summer months CPU usage is typically down by 30% from the spring term. It was decided that Class C memory charges be reduced by 50% and the hours of operation for Class C be extended to encourage usage of machine resources during the less busy summer period.

A breakout of CPU usage by month for 1976 shows the effect of this policy. The CPU load during June, July and August is at a relatively constant maximum value of 14,500 minutes per month. The total usage during the summer is now higher than in the spring term.

CPU Usage by Month 1976
(MINUTES)

1976

	HSJS,MSJS and GPJS	SPJS	TOTAL
January	6,062	4,390	10,452
February	8,064	2,409	10,473
March	10,686	3,375	14,061
April	9,811	2,009	11,820
May	6,106	3,434	9,546
June	7,569	6,986	14,555
July	6,543	8,008	14,551
August	5,660	9,236	14,896
TOTAL	60,501	39,847	100,348

The SPJS has been successful in maximizing both the daily and seasonal utilization of S/370-165-II. It has provided the large research user computing at nominal cost without adversely affecting the throughput or loading of the other services offered on the S/370-165-II.

Rein Mikkor

SCRIPT SCRIPTS

The new version of SCRIPT (see COMPUTERNEWS #138) contains several new features. This column will highlight several of these features.

It is difficult to enter text at a keypunch (or online with an upper-case-only terminal) for eventual printing in upper-and-lower-case ('mixed-case'). A solution used by some processors has been to require the user to mark those letters he wants capitalized and translate all unmarked letters to lower case, thus

```
*JOHN *F. *DOE
```

would print as

```
John F. Doe
```

in the final printed output if it were on a terminal or a printer with a TN train. This is usually satisfactory, but requires special handling if a copy of the marker itself is required in the output. The SCRIPT solution is to use a marker that the user can specify or re-specify at any point in the document. A short SCRIPT file has been created, containing the translation required. The default in this file sets the marker to "$". To access this, one need only code

```
.im tolower
```

near the beginning of each SCRIPT file. (Note that this 'imbed' does create a break). This file is available automatically to batch users; TSO users must refer to it as follows:

```
NS dsn LIB('APPL.SCRIPT.SYSLIB')
```

to obtain the file. (This library will contain useful SCRIPT imbeds; users interested in contributing to it are invited to contact Ian Darwin.)

To change the marker character to, for example, a per cent sign ("%") for part of a file, one need only code

```
.ti set %
```

To mix documents that were prepared partly in upper-case-only and partly in mixed-case, a file which turns off translation is available. Coding:

```
.im asis
```

before a section of text that is in mixed-case already, turns off the translation. The two files ('tolower' and 'asis') may be used as often as necessary within a single document. For further information, see USERBOOK 3.3NSCRIPT or the SCRIPT Reference Manual, or contact Ian Darwin at 978-7318 in Room 303, 49 St George.

Ian Darwin

COMMON LINKAGE EDITOR BUGS

The IBM Operating System 360/370 Linkage Editor is one of the most heavily used yet least known processors. Normally, it causes no problems; however, when problems do occur, diagnosing an error can often be very difficult. One common error message is:

```
IEW0594 INPUT DATA BLOCKSIZE IS INVALID
```

The IBM Linkage Editor Reference Manual is not helpful in this case, but usually the problem is that the object module (output from compiler and input to Linkage Editor) blocksize is greater than 3200 bytes. 3200 bytes is a hardwired value, a Linkage Editor maximum. Sometimes, a user tries to save space and increase object module blocksize. This will not work.

Another common message is:

```
IEW0484 - ERROR - TABLEOVERFLOW ----
```

There are several such error messages, but in each case the resultant text always speaks of table overflow. The Linkage Editor has two SIZE options, Value 1 and Value 2, the first representing the amount of main storage available to the processor, the second value representing the part of the region (or Value 1) that is available for program text buffers. There are a number of formulae in the Linkage Editor Manual, but a quick and simple solution in virtually all cases would be, for example, in the case of a FORTRAN Job:

```
// EXEC FORTLEGO,PARM.LE='SIZE=(240K,60K)',
//  REGION.LE=250K
        .
        .
        .
```

These table overflows normally take place when dealing with very large programs with a great many subroutines and large common blocks. The above appears to be the optimal value for these programs. UTCC generates the optimum, cheapest-to-run version of the Linkage Editor which runs in 96K. This level of the Linkage Editor will handle just about all cases except extremely large jobs as indicated above.

Herb Kugel

RELEASE OF OFFLINE 2314 DISK SPACE

Users who own offline 2314 disk volumes are reminded of two procedures designed to release unused space on their packs. They are:

RELOFPD	for partitioned datasets
RELOF	for sequential datasets

To release space in a partitioned dataset, simply code:

```
// EXEC RELOFPD,PDS='dsname',SER=ser
```

where dsname is the name of the dataset and ser is the volume serial number of the 2314 pack.

Similarly, for sequential datasets, code:

```
// EXEC  RELOF,SEQ='dsname',SER=ser
```

where dsname and ser are as above.

Naturally, a /*SETUP statement should also be used for the required volume.

Herb Kugel

GPJS - SOFTWARE USAGE STATISTICS

The following chart summarizes the software usage per classified procedure and program name for the General Purpose Job Stream from August 9 to September 1, 1976.

SOFTWARE	USES (#JOBSTEPS)	(%)
ALGOL	63	0
APLSV	13	0
ASM	326	1
COBOL	179	0
CSMP	3	0
DATATEXT	110	0
DBUGUTIL	21	0
DISKUTIL	1,382	7
DSUTIL	3,209	17
DYNAMO	14	0
FORTRAN	5,727	30
GPSS	59	0
GRAPHICS	1,537	8
JCLUTIL	89	0
LISP	2	0
MARKEXAM	11	0
MARKIV	356	1
MPS/MPSX	18	0
OSUTIL	174	0
PAPERTAP	36	0
PL/I	1,273	6
RPG	38	0
SAS	12	0
SERVAID	208	1
SNOBOL	507	2
SORTMERG	741	3
SPEAKEZ	60	0
SPSS	1,593	8
SSP/BMDD	379	2
TAPEUTIL	358	1
TIPRS	44	0
TSO	36	0
XFR	225	1
TOTAL	18,803	

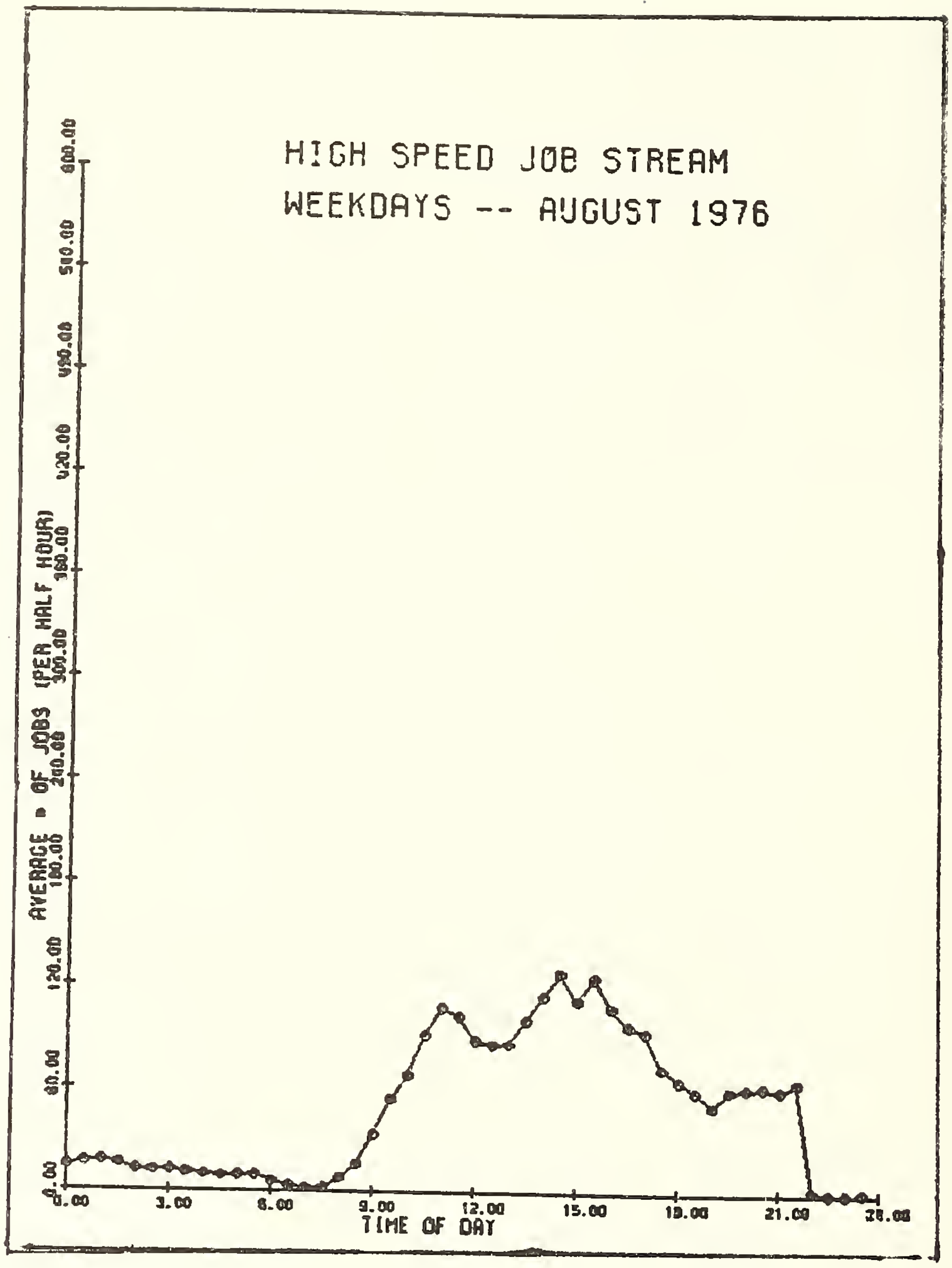
Kin Fong

HSJS MONTHLY STATISTICS

During the month of August 1976, 55,970 jobs were processed compared with 51,733 jobs for the previous year, an increase of 8.2%.

The following charts summarize the HSJS activity for the month of August. The graph represents the average number of jobs processed during each half hour period of the day.

Mark Tapia



```
RESOURCE USAGE BY PROCESSOR

                                 ||        TOTAL PER PROCESSOR            ||     AVERAGE PER USE           |
                                 ||   CPU     |  #CARDS    |  #LINES      ||  CPU    |#CARDS  | #LINES   |
PROCESSOR  | #USES  %TOTAL       ||  (MIN)    |   READ     |  PRINTED     || (MIN)   | READ   | PRINTED  |
--------------------------------------------------------------------------------------------------------
WATFIV     | 28891    (52)       ||  614.71   |  7129844   |  6770670     || 0.020   |  244   |   232    |
PL/C       |  8790    (16)       ||  166.94   |  1689188   |  2606585     || 0.016   |  192   |   296    |
SP/K       |  6269    (11)       ||  199.57   |  1103472   |  2556755     || 0.031   |  176   |   408    |
ASMG       |  4036    ( 7)       ||   92.78   |   882307   |  1136465     || 0.020   |  216   |   280    |
UTILITY    |  3668    ( 7)       ||   11.21   |   663349   |   754727     || 0.000   |  180   |   204    |
WATBOL     |  1325    ( 2)       ||   21.09   |   528471   |   345494     || 0.016   |  396   |   260    |
SP/KM      |   938    ( 2)       ||   13.98   |   100169   |   138923     || 0.012   |  104   |   148    |
SPSSQ      |   795    ( 1)       ||   12.74   |   147087   |   131841     || 0.016   |  184   |   164    |
SPITBOL    |   742    ( 1)       ||    7.33   |    97072   |   150315     || 0.008   |  128   |   200    |
ALGOLW     |   214    ( 0)       ||    3.72   |    22778   |    30835     || 0.016   |  104   |   144    |
UTILITY    |   192    ( 0)       ||    0.32   |    17044   |    18676     || 0.000   |   88   |    96    |
ASSIST     |    35    ( 0)       ||    0.20   |     7816   |     3712     || 0.004   |  220   |   104    |
PLUTO      |    29    ( 0)       ||    0.17   |     2010   |     2144     || 0.004   |   68   |    72    |
SIMON      |    24    ( 0)       ||    0.09   |     1368   |     1693     || 0.000   |   56   |    68    |
LISP       |    17    ( 0)       ||    0.07   |      945   |     1788     || 0.004   |   52   |   104    |
$          |     9    ( 0)       ||    0.02   |     1309   |     1392     || 0.000   |  144   |   152    |
SNAP       |     6    ( 0)       ||    0.08   |       72   |      398     || 0.012   |   12   |    64    |
UTILITY    |     0    ( 0)       ||    0.00   |        0   |        0     || 0.000   |    0   |     0    |
--------------------------------------------------------------------------------------------------------
TOTAL        55970               || 1145.01   | 12399301   | 14652413     || 0.020   |  221   |   261    |
```

S/370-165-II RELIABILITY

The reliability statistics for August indicate an uptime percentage of 99.4 while the average number of unscheduled IPL's per day reached 0.47. The number of scheduled hours of production for August totalled 492.

MONTHLY COMPARATIVE FIGURES

MONTH	% UPTIME	UNSCHED. IPLs/DAY
Jan/75	95.7	2.77
Feb/75	96.0	1.14
Mar/75	96.7	1.10
Apr/75	98.6	0.70
May/75	99.4	0.60
Jun/75	97.4	0.79
Jul/75	95.2	1.23
Aug/75	97.6	0.83
Sep/75	99.1	0.87
Oct/75	97.2	1.13
Nov/75	95.8	1.63
Dec/75	99.4	0.48
Jan/76	99.1	0.43
Feb/76	98.9	0.97
Mar/76	96.8	1.03
Apr/76	99.3	0.52
May/76	98.8	0.67
Jun/76	96.5	0.97
Jul/76	96.4	0.72
Aug/76	99.4	0.47

The percentage breakdown for total system downtime for August was:

HARDWARE: 114 minutes (67.9%)
SOFTWARE: 32 minutes (19.1%)
OTHER : 22 minutes (13.0%)

The major events contributing to these downtime totals were as follows:

Aug. 27 - 92 minutes down - 4 IPL's

11 minutes attributed to equipment checks on all 3705 TSO lines. Two IPL's were required to reset the channel.

81 minutes due to a rise in humidity and temperature in the machine room which causes "INTERFACE CONTROL CHECKS" on the ITEL controller attached to channel 3. The problem rectified itself when the temperature returned to normal.

Paul Scarborough

```
                 DOWNTIME_REPORT_ON___S/370__FOR_AUG_76

------------------------------------------------------------------------------------------------------------------------------
|                                                     REIPLS(FREQ) // DOWNTIME (MN)                                          |
| DAY  REIPL    DNTIME 0    5    10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100|
=======================+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+
| S  1      1      10  |☐*********                                                                                          |
| M  2 (CENTER CLOSED) |                                                                                                    |
| T  3      0       0  |                                                                                                    |
| W  4      0       0  |                                                                                                    |
| T  5      0       0  |                                                                                                    |
| F  6      0       0  |                                                                                                    |
| S  7      0       0  |                                                                                                    |
| S  8      0       0  |                                                                                                    |
| M  9      1       5  |☐****                                                                                              |
| T 10      0       0  |                                                                                                    |
| W 11      0       0  |                                                                                                    |
| T 12      2       8  |☐☐******                                                                                            |
| F 13      1       4  |☐***                                                                                               |
| S 14      0       0  |                                                                                                    |
| S 15      0       0  |                                                                                                    |
| M 16      0       0  |                                                                                                    |
| T 17      0       0  |                                                                                                    |
| W 18      0       0  |                                                                                                    |
| T 19      2      11  |☐☐*********                                                                                         |
| F 20      0       C  |                                                                                                    |
| S 21      0       0  |                                                                                                    |
| S 22      1      15  |☐**************                                                                                    |
| M 23      0       0  |                                                                                                    |
| T 24      0       0  |                                                                                                    |
| W 25      0       0  |                                                                                                    |
| T 26      1      18  |☐*****************                                                                                 |
| F 27      4      92  |☐☐☐☐****************************************************************************************        |
| S 28      0       0  |                                                                                                    |
| S 29      0       0  |                                                                                                    |
| M 30      1       5  |☐****                                                                                              |
| T 31      0       0  |                                                                                                    |
------------------------------------------------------------------------------------------------------------------------------

LEGEND        : ONE ☐  =ONE UNSCHED. IPL
                ONE *  =ONE MINUTE OF DOWNTIME

                TOTAL SCHEDULED HOURS OF PRODUCTION :  492
                TOTAL DOWNTIME (MN)   :  168 , AVG/DAY :    5.60 , AVG/PROD HOUR :    0.17
                TOTAL UNSCHED. IPL'S  :   14 , AVG/DAY  :    0.47
                DOWNTIME RATE IS      :  0.57 PERCENT OF SCHEDULED PRODUCTION HOURS
```

INTERACTIVE SYSTEMS RELIABILITY

Interactive Services experienced an inordinate amount of downtime for the month of August. The multiplexor channel problems continued unabated from August 3 to August 5, 1976. We sincerely regret the inconvenience caused to our user community, but occasionally intermittant hardware problems are difficult to trace.

The uptimes achieved for the month of August for each of APL and ATS were 96.96% and 96.95% of scheduled operation, respectively. The number of scheduled hours of operation during the month of August totalled 480, while the number of unscheduled IPL′s per day was 0.63. In addition to the scheduled time, Interactive Services were available for approximately 130 hours of unattended weekend operation.

The percentage breakdown of total S/360 downtime for August was: Hardware - 828 minutes (94.74%), Software - 18 minutes (2.06%), Other - 28 minutes (3.20%). Nineteen unscheduled IPL′s were required as a result of the failures. The major events contributing to downtime were as follows:

August 3: Nine IPL′s and 519 minutes of downtime resulted from a word zero check on the 2870 multiplexor channel. Failures indicated bad parity in Byte 6 of control word. The customer engineer replaced associated cards in the data register.

August 4: Intermittant hardware problems with the multiplexor channel continued from the previous day. Five IPL′s and 266 minutes of downtime were attributed to the 2870 problem. The Customer Engineer swapped local storage and Adder boards in an attempt to move the failures to a different address.

August 5: a) Three IPL′s and 36 minutes of downtime resulted from a parity check in the multiplexor channel. The Customer Engineer adjusted voltages but the problem seemed to have corrected itself during swapping of additional control cards.

b) Another IPL was necessary in order to recover the HASP/HASP Communications link between the two systems, resulting in seven minutes of additional downtime.

August 12: The CPU entered into solid system state while APL and ATS control terminals were also locked. A stand alone dump was taken but the problem still seems to be undetermined - 18 minutes down.

August 22: One IPL and 28 minutes of downtime were attributed to power fluctuation. The operator was unable to restore power immediately since circuit breakers had to be reset in the disc control units.

APL NOTES: PROBLEMS WITH RSIM

The program RSIM (LIB 2 STP4) is an APL implementation of the REVISED SIMPLEX ALGORITHM for the solution of linear programming problems. Two serious errors in the RSIM implementation have been identified. The first error was reported in the APL QUOTEQUAD (Vol. 6(3), 1975). The other was discovered in the course of DATATALK work on a problem passed to us from the Department of Industrial Engineering.

New programs replacing RSIM are now available on our system in the APL workspace 70 LINPR. In particular, the program RSMAX in 70 LINPR can be used to solve all linear programming problems to which RSIM can be successfully applied as well as some problems which cannot be handled by RSIM.

Details of the RSMAX program are too technical for inclusion in this newsletter. However, anyone interested in more information on the RSMAX program is invited to contact Ernst Goetze at 978-6710.

Ernst Goetze

APL BOOKS AND PERIODICALS

During the past few years, APL programming has made enormous gains in popularity and use throughout the world. Correspondingly, the list of papers, articles and conference proceedings relating to APL concepts, techniques, implementation and applications has grown to be a lengthy one. The most recent bibliography (APL QUOTE QUAD, Vol 6(2),1975) lists over one thousand references and still fails to cover the field.

The UTCC Information Office is now receiving the following specifically APL related periodicals:

APL QUOTE QUAD(ACM quarterly)
I.P.SHARP NEWSLETTER(regularly published by I.P.SHARP Associates,Ltd.)
and
APL NEWS(a publication of the APL PRESS, Swarthmore,PA)

In addition, the Information Office has received the following books from the APL PRESS:

ELEMENTARY ANALYSIS,by K.E. Iverson
APL IN EXPOSITION,ibid
INTRODUCING APL TO TEACHERS,ibid
and AN INTRODUCTION TO APL FOR SCIENTISTS AND ENGINEERS,ibid

All of these books were written by Dr. K.E. Iverson, one of the originators and pioneers of APL programming and provide an exposition of elementary and advanced APL concepts for problem solving. They are well worth the user's attention.

Ernst Goetze

UTCC COMPUTER EQUIPMENT

SYSTEM/370 MODEL 165-II

- located in SF103/105/112
- provides General Purpose Job Stream, High Speed Job Stream, APL SV and TSO services
- 4 megabytes of memory
- 1 drum (2301)
- 16 disk drives (3330)
- 9 disk drives (2314)
- 6 magnetic tape drives (4 9-track and 2 7-track)
- 6 display consoles
- 6 printers
- 5 card readers
- 1 card punch
- 8 remote batch terminals
- 1 paper tape reader
- Calcomp plotters (11" and 30")
- Gould plotter (11")
- OS/MVT with HASP

SYSTEM/360 MODEL 65

- located in McLennan Physical Laboratories
- provides APL and ATS services
- 1536K bytes of core
- 26 disk drives (2314)
- 3 9-track magnetic tape drives
- 1 printer
- 1 card reader
- 1 card punch
- 140 typewriter terminals
- OS/MVT with APL and ATS

COMPUTER RESEARCH FACILITY

- located in SF207
- DEC GT44 Systems with
  - 1 PDP-11/40 CPU
  - 2 9-track dual density tape drives
  - 1 1000 cpm card reader
  - VT17 graphics display unit
  - 1 lab. peripheral system with A/D & D/A
  - 1 CVI 260 Video Bandwidth Compressor
- DEC GT40 System with
  - 1 PDP-11/10 CPU
  - 1 2314 tape disk drive
  - 1 VT12 graphic display unit
  - 9-track/800 BPI tape drive
  - 1 Calcomp microfilm plotter

UTCC DIRECTORY

	ROOM	PHONE 978-
ASSOCIATE DIRECTOR		
Al Heyworth	SF214C	4936
ADMINISTRATION MANAGER		
Dave Scobie	SF143	8948
INFORMATION OFFICE		
General Inquiries	SF128	4990 or 4991
Don Gibson	SF128A	5568
MANAGER, SERVICES		
Stan Yagi	SG200	7331
MANAGER, MARKETING AND PROGRAMMING SERVICES		
Dave Scobie	SF143	8948
COMPUTING CO-ORDINATORS		
Sandford Fleming Terminal		
Mark Tapia	SF125	7109
Program Advisors	SF117	8599
Erindale		
Clem DiPlacido		828-5311
Scarborough		
Martin Hubel		284-3173
Arts and Science		
Dave Tritchler	SS2104	6509
New Physics		
John Roth	NP1202	8823
SUPERVISOR, APPLICATIONS SUPPORT		
Herb Kugel	SG304	7286
MANAGER, OPERATIONS		
Derry Cox	SF113	7092
SUPERVISORS, OPERATIONS		
Paul Scarborough (S/370-165-II)	SF114	6220
Kam Jain (S/360-65)	NP333	7374
Dave Wong (S/370-155)		6864
MANAGER, SYSTEMS		
Rein Mikkor	SF116	5058
SYSTEM HARDWARE SUPERVISOR		
Eugene Siciunas	SF113	4967
MANAGER, COMPUTER RESEARCH FACILITY		
Dennis Smith	SF214B	4800
LAB CO-ORDINATOR (CRF)		
Krishna Patnaik	SF207	4086
ACCOUNTS		
Ann DeFazio	SF139	7148
Wynona Bardgett	SF139	8702
ACCESS CODES		
Yvonne Bowen	SF139	8703
ASSISTANT MANAGER, INFORMATION SYSTEMS TERMINAL		
George Milo		5040

NOTE:

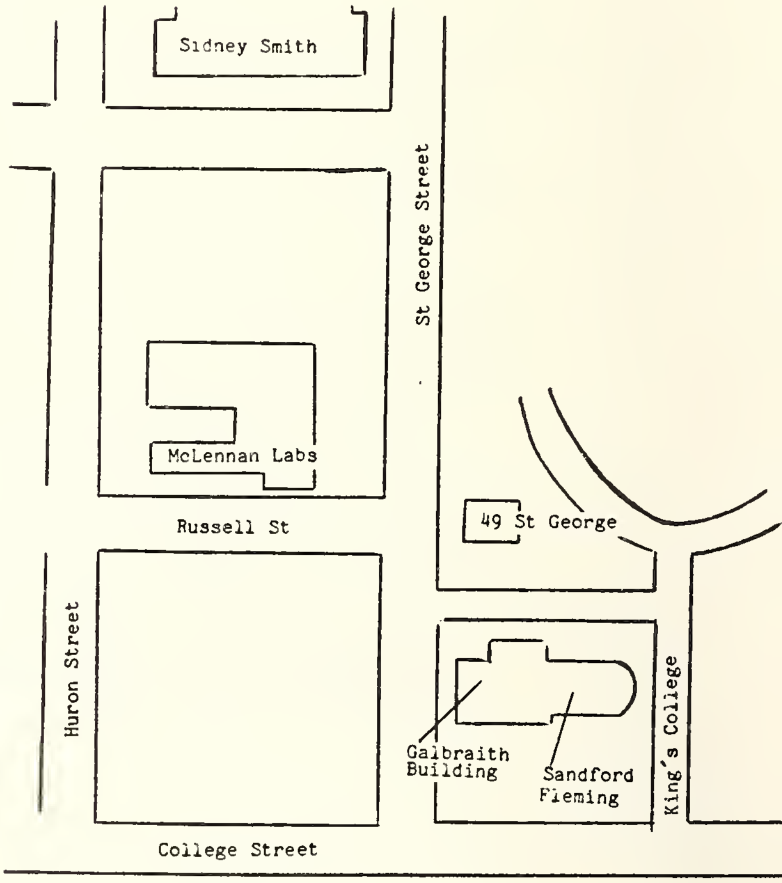
SF = Sandford Fleming
SG = 49 St. George
NP = McLennan Physical (New Physics)
SS = Sydney Smith

JOB AND SYSTEM STATUS QUERIES

SYSTEM/370, TSO	7373
ATS/APL	6234
2741 TERMINAL MALFUNCTIONS	7107
029 KEYPUNCH MALFUNCTIONS	6465

SERVICES

	DIAL-UP	ADVICE
APL - 2741	7200	6710
APL(ASCII)	7200	6710
APL SV - 2741	7239	6710
APL SV - TTY	7447	6710
ATS	7100	7107
TSO - 2741	7303	8599
TSO - TTY (10 cps)	7390	8599
TSO - TTY (30 cps)	7386	8599
DATATALK	6710	6710



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TORONTO, CANADA,